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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,442	09/26/2003	Chandandumar Aladahalli	DB001050-001	8430

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THORP REED & ARMSTRONG, LLP
ONE OXFORD CENTRE
301 GRANT STREET, 14TH FLOOR
PITTSBURGH, PA 15219-1425

EXAMINER

HIRL, JOSEPH P

ART UNIT	PAPER NUMBER
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2129

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/672,442

Applicant(s)

ALADAHALLI ET AL.

Examiner

Joseph P. Hirl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/25/6</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered October 10, 2006 for the patent application 10/672,442 filed on September 26, 2003.
2. The First Office Action of June 21, 2006 is fully incorporated into this Final Office Action by reference.

Status of Claims

3. Claims 1-44 are pending in this application.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-44 are rejected under 35 U.S.C. § 101 for nonstatutory subject

matter. The computer system must set forth a practical application of § 101 judicial

exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-

77. The invention is ineligible because it has not been limited to a substantial practical application.

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather that the final result achieved by the claimed invention is useful, tangible and concrete. If the claim is directed to a practical application of the § 101 judicial exceptions producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S. C. § 101.

The invention must be for a practical application and either:

- 1). specify transforming (physical thing – article) or
- 2). have the Final Result (not the steps) achieve or produce a
useful (specific, substantial and credible),
concrete (substantially repeatable / non unpredictable), and
tangible (real world / non abstract) result

(tangibility is the opposite of abstractness).

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended.

Claims that cite "performing a pattern search, characterized by driving the search with a metric other than step size," "determining the effect of a plurality of moves on a set of components," and ranking includes one of analytically, probabilistically and heuristically ranking" are not statutory.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Lundahl et al (USPN 6,636,862, referred to as **Lundahl**).

Claims 1, 23

Lundahl anticipates a method for solving packing and component problems by performing a pattern based search, characterized by driving the search with a metric other than step size (**Lundahl**, c 38:19-54; Examiner's Note (EN): ¶ 15 applies; packing and component problems merely represents data for analysis; f_x is a metric; see Lundahl @ c42:20-32 re networked personal computer).

Claims 2, 24

Lundahl anticipates wherein the metric for driving the search is based on a change in value of an objective function (**Lundahl**, c 38:19-54; EN: the objective function is the metric).

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Claims 3, 25

Lundahl anticipates the metric for driving the search is a sensitivity of an objective function to component moves (**Lundahl**, c 38:19-54; EN: component moves are those characteristics that make up the objective function).

Claims 4, 26

Lundahl anticipates determining the effect of a plurality of moves on a set of components(**Lundahl**, c 38:19-54; EN: component moves are those characteristics that make up the objective function); and performing a pattern based search based on said determining (**Lundahl**, c 38:19-54; EN: component moves are those characteristics that make up the objective function).

Claims 5, 27

Lundahl anticipates said determining includes ranking each of said plurality of moves based on the change each move has on an objective function and ordering said moves from highest to lowest ranking (**Lundahl**, c 32:5-22).

Claims 6, 12, 17, 22, 28, 34, 39, 44

Lundahl anticipates said ranking includes one of analytically, probabilistically and heuristically ranking (**Lundahl**, c 32:5-22; EN: analytically concerns any numeric process).

Claims 7, 13, 18, 29, 35, 40

Lundahl anticipates dividing the range between highest and lowest rankings into a plurality of intervals, and assigning each of the moves to one of said intervals

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(**Lundahl**, c 32:5-22; EN: ¶ 15 applies; moves refer to any change in a variable or metric).

Claims 8, 14, 19, 30, 36, 41

Lundahl anticipates assigning is performed according to one of a geometric progression based on said rankings and said rankings themselves (**Lundahl**, c 32:5-22; EN: ¶ 15 applies).

Claims 9, 31, 43

Lundahl anticipates determining includes deriving a function that relates moves to changes in an objective function (**Lundahl**, c 38:19-32; EN: moves are synonymous with changes to the objective function).

Claims 10, 15, 20, 32, 37, 42

Lundahl anticipates determining includes determining the non-intersecting volume between an object and itself after applying a move (**Lundahl**, c 2:36-55; EN: the non-interesting volume between something and itself is the region excluding something or it is just the cluster).

Claims 11, 16, 33, 38

Lundahl anticipates ranking each of a plurality of moves on a set of components based on the effect each move has on an objective function; and ordering the moves from those moves having the highest ranking to those moves having the lowest ranking (**Lundahl**, c 32:5-22).

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Claim 21

Lundahl anticipates deriving a function that relates moves to changes in an objective function (**Lundahl**, c 38:19-32).

Response to Arguments

8. Receipt of a copy of XP002278320 is acknowledged.
9. Claim objections related to claims 8, 14, 19, 30, 36 and 41 the second "said rankings" is withdrawn.
10. The specification objection regarding "geometric progression" is withdrawn.
11. Applicant's arguments filed on October 10, 2006 related to Claims 1-44 have been fully considered but are not persuasive.

In reference to Applicant's argument:

In response to the above-stated rejection, the Applicants have amended claims 1 and 4 to recite "a method for solving packing and component layout problems." Claims 11, 16, and 21 have been amended to recite a method "for determining sensitivity for use in solving packing and component layout problems." The Applicants respectfully point out that this amendment further clarifies that the claimed processes involve the manipulation of data representing physical objects, and thus, claims 1, 4, 11, 16, and 21 are statutory under 35 U.S.C. § 101. The Applicants further point out that Paragraphs 82-87 and Figures 7A-7C show real-world examples of the claimed processes being used for packing various objects in a large sphere, packing luggage pieces into the trunk of a car, and packing gears into a cubic container. (Please see MPEP 2106 IV. B. 2. (b).)

In response to the above-stated rejection, the Applicants have amended claims 23, 26, 33, 38, and 43 to recite "a computer readable medium." The Applicants respectfully point out that a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and thus claims 23, 26, 33, 38, and 43 are statutory under 35 U.S.C. § 101. The Applicants further point out that a computer program is a set of instructions capable of being executed by a computer, and the computer program itself is not a process and should not be treated as such.

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Examiner's response:

¶ 15. applies. Limitations appearing in the specification but not recited in the claim are not read into the claim. Please see the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility published on November 22, 2006 in the Official Gazette. A result that is a practical application must be cited in the claim limitations and such result must not attempt to patent every "substantial practical application" of an idea. Simply stated, the claim set does not limit to the required result. As an example, "a method for solving packing and component layout problems" does not qualify as a result. Nothing is "output" from such claim. Concerning claims 23, 26, 33, 38 and 43, wherein a computer readable medium has been cited as a limitation, none of these claims cite a limitation "outputting a ____ for the purpose of ____" or something equivalent thereto. Merely causing a computer to operate does not produce a result. First Office Action applies.

In reference to Applicant's argument:

The Office cites Lundahl, column 38, lines 19-54, and column 42, lines 20-32, as allegedly anticipating claims 1 and 23. The Applicants respectfully disagree with the Office's allegation. The Applicants first point out that Lundahl discloses a method and system for the dynamic analysis of data related to consumer choice modeling or quality control programs. (See Lundahl, column 1, lines 24-26, and column 8, lines 43-67). The Applicants next point out that the use of X, Y, Z matrixes for storing consumer choice or quality control data is merely a naming convention for the matrixes, and the matrixes have no correlation with the x, y, z axes. The Applicants also note that column 38, lines 19-54 (cited by the Examiner) discloses a general optimization problem where the goal is to find the minimum of a given objective function with exemplary functions between the X, Y, Z matrixes provided. There is no mention of any kind of solution procedure let alone performing a pattern-based search, characterized by driving the search with a metric other than step size, such as that required by claims 1 and 23. Rather, Lundahl discloses using a third party (MathWorks) routine. The Applicants finally point out that column 42, lines 20-32, discloses a user interface on a networked computer. There is no mention of any kind of procedure let alone a procedure for performing a pattern-based search, characterized by driving the search with a metric other than step size, such as that required by claims 1 and 23.

Examiner's response:

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¶ 15. applies. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Lundahl's solution procedure is optimization @ Lundahl, c38:19-54. Function minimization is equivalent to performing a pattern-based search where the pattern is "minimization." "Variable constraints" @ Lundahl, c 38:43, relate to "a metric other than step size." First Office Action applies.

In reference to Applicant's argument:

The Office cites Lundahl, column 32, lines 5-22, as allegedly anticipating claims 11, 16, 33, and 38. The Applicants respectfully disagree with the Office's allegation. The Applicants respectfully point out that the cited section of Lundahl discloses a process that determines what element in dataset X can best predict the element in dataset Y. The process in Lundahl is used for modeling and/or function relationships within or between data sets (See Lundahl, column 8, lines 19-33) and not ranking each of a plurality of moves on a set of components based on the effect each move has on an objective function, such as that required by claims 11, 16, 33, and 38.

Examiner's response:

¶ 15. applies. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Lundahl, c32:8-9 ranks X-prediction variables in importance from the $Y=[G X]_{PLS}$ model which is equivalent to "ranking ... components based on ... and objective function" where the Lundahl model is an objective function or model. First Office Action applies.

In reference to Applicant's argument:

The Office cites Lundahl, column 38, lines 19-32, as allegedly anticipating claims 21 and 43. The Applicants respectfully disagree with the Office's allegation. The Applicants respectfully point out that the cited section of Lundahl discloses a general optimization problem where the goal is to find the minimum of a given objection function with the only solution procedure being the SIMPS optimization routine. Neither the cited passage of Lundahl nor the SIMPS optimization routine discloses performing a preprocessing method comprising, deriving a function that relates moves to changes in an objective function, such as that required by claims 21 and 43.

Examiner's response:

¶ 15. applies. "A preprocessing method comprising" is cited in the preamble of claims 21 and 43 wherein the body of the claims is independent of the preamble limitations. Above discussion applies. First Office Action applies.

Examination Considerations

12. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

13. Examiner's Notes are provided with the cited references to prior art to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior

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art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

14. Unless otherwise annotated, Examiner's statements are to be interpreted in reference to that of one of ordinary skill in the art. Statements made in reference to the condition of the disclosure constitute, on the face of it, the basis and such would be obvious to one of ordinary skill in the art, establishing thereby an inherent prima facie statement.

15. Examiner's Opinion: ¶¶ 12-14 apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Claims 1-44 are rejected.

Correspondence Information

18. Any inquiry concerning this information or related to the subject disclosure should be directed to the Primary Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David R. Vincent can be reached at (571) 272-3080.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,
Washington, D. C. 20231;

Hand delivered to:

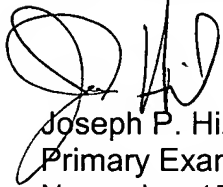
Receptionist,
Customer Service Window,
Randolph Building,
401 Dulany Street,
Alexandria, Virginia 22313,
(located on the first floor of the south side of the Randolph Building);

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or faxed to:

(571) 273-8300 (for formal communications intended for entry.

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Joseph P. Hirl
Primary Examiner
November 15, 2006